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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No. 09/624,963	Applicant(s) KEYSER ET AL.
Office Action Summary	Examiner Londra C Burge	Art Unit 2178

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 July 2000*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

1.   This action is responsive to communications: original application filed on

7/25/2000 and IDS filed on 3/13/2002.

2   Claims 1-25 are pending. Claims 1, 24 and 25 are independent claims.

Claim Rejections - 35 USC § 103

3.   **The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all**

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   **Claims 1-4, and 24-25 are rejected under 35 U.S.C. 103(a) as being**

unpatentable over Michelman et al. (herein after Michelman), U.S. Patent No.

6,128,633 filed March 1997 issued October 2000 in view of Ruedisueli et al (herein

after Ruedisueli), U.S. Patent No. 5,838,819 filed November 1995 issued November

1998.

In regard to independent claim 1, Michelman teaches of "A system for

manipulating page-breaks in an electronic document. A User Interface Process provides

a graphical user interface allowing a user to select a page-break within an electronic

document and then identify a new location for the page-break. (Michelman Abstract

Lines 1-5).

Michelman does not specifically teach of a obtaining the data from a handwriting

system. However, Ruedisueli teaches of a system includes a processor for processing

the handwritten notes to generate the electronic copies, with each electronic copy associated with a respective identifier corresponding to at least one set of the respective handwritten notes, in which the identifiers facilitate the management of the electronic copies. The system includes an electronic notepad and can also include devices operatively connected to the electronic notepad for operating with the electronic notepad to receive, manage, merge, and/or display the electronic copies from the electronic notepad. (Ruedisueli Abstract Lines 2-12; compare with claim 1, *"...obtaining electronic ink data from the handwriting system, the ink data being associated with the electronic document; and automatically identifying, using at least a portion of the electronic ink data, one or more potential page breaks for possible insertions in the electronic document to maintain a page correspondence between the electronic document and a physical document also generated in accordance with the handwriting system."*). It would have been obvious to one of ordinary skill at the time of the invention to apply Ruedisueli to Michelman, providing Michelman the benefit of adding and electronic notepad to the automatic page break pagination.

In regard to dependent claim 2, Michelman does not specifically teach of a handwriting system being a personal digital notepad. However, Ruedisueli teaches that the system includes an electronic notepad and can also include devices operatively connected to the electronic notepad for operating with the electronic notepad to receive, manage, merge, and/or display the electronic copies from the electronic notepad. (Ruedisueli Abstract Lines 8-12; compare with claim 2, *"...the handwriting system is a personal digital notepad."*). It would have been obvious to one of ordinary skill at the

time of the invention to apply Ruedisueli to Michelman, providing Michelman the benefit of having an electronic notepad for the automatic page break system.

In regard to dependent claim 3, Michelman teaches of "A System Process performs the steps of moving the selected page-break to the new location and adjusting the scaling and the automatic page-breaks for the remainder of the document to accommodate the page-break at the new location. (Michelman Abstract Lines 5-9; compare with claim 3, *"...automatically inserting the one or more identified potential page breaks in the electronic document"*).

In regard to independent claim 4, Michelman teaches that "A User Interface Process provides a graphical user interface allowing a user to select a page-break within an electronic document and then identify a new location for the page-break." (Michelman Abstract 2-5; compare with claim 4, *"...presenting the one or more identified potential page breaks to a user for approval to automatically insert the one or more identified potential page breaks in the electronic document."*)

In regard to independent claim 24, claim 24 incorporates substantially similar subject matter as claimed in claim 1, and in further view of the following, is rejected along the same rationale.

Michelman teaches that the "program modules may be physically located in different local and remote memory storage devices." (Michelman Column 6 Lines 32-34; compare with claim 24; *"...a memory"*). Michelman also teaches that "Moreover, those skilled in the art will appreciate that the invention may be practiced with other computer system configurations, including hand-held devices, multiprocessor systems, microprocessor-based or programmable consumer electronics, minicomputers,

mainframe computers, and the like." (Michelman Column 7 Lines 48-53; compare with

claim 24, "...at least one processor").

In regard to independent claim 25, claim 25 reflects similar subject matter as

claimed in claim 1 and is rejected along the same rationale.

5.   **Claims 5, 10, 12 and 14 are rejected under 35 U.S.C. 103(a) as being**

unpatentable over being unpatentable over Michelman et al. in view of Ruedisueli et

al. as applied to claim 1, and in further view of Forcier, U.S. Patent No. 6,502,114 B1

filed October 1998 issued December 2002.

In regard to dependent claim 5, Michelman teaches of "The overall scaling

factor identifies the smallest scaling factor within the document. After the completion

of step 345, if the value of the scaling factor for one of the adjusted pages is smaller than

the value of the overall scaling factor, then the overall scaling factor is set to this new

value. If the previous scaling factor for one of the adjusted pages was equal to the

overall scaling factor and the scaling factor for that page is increased, then the scaling

factor must be re-calculated for all of the pages in the document and a new overall

scaling factor will be set to the smallest of these. Otherwise, the overall scaling factor

remains the same."

After identifying a new overall scaling factor, processing continues at step 355

where the document is repaginated in accordance with the new overall scaling factor.

The repagination of the document can be performed in a variety of ways and those

skilled in the art will be familiar with the various repagination algorithms. In general,

the repagination process of an exemplary embodiment has the overall effect of

maintaining the manual page-breaks at their current location, removing all automatic

page-breaks, and then inserting new automatic page-breaks in accordance with the new

overall scaling factor." (Michelman Column 12 Lines 60-67 and Column 13 Lines 1-7;

compare with claim 5; "... *labeling spatial difference not below a threshold value as*

possible insertion points. ")

Michelman does not specifically teach of strokes. However, Forcier teaches "A

variation on the Delete Space gesture has the strokes following the gesture on the line (if

any) being left-justified at the pen up position for the gesture. Another variation has the

strokes following the gesture on the line (if any) being left-justified at the left-most point

position of any deleted strokes (i.e., the following strokes take the place of the deleted

strokes). These variations enable easy maintenance of word spacing." (Forcier Column

28 Lines 45-52; compare with claim 5; "...*measuring a spatial difference between*

consecutive pairs of strokes made in accordance with the handwriting system. ") It

would have been obvious to one skilled in the art at the time of the invention to apply

Forcier to Michelman, providing Michelman the benefit of measuring strokes for

possible insertion points.

In regard to dependent claim 10, Michelman does not specifically teach of a

stoke falling in a certain region. However, Forcier teaches "The Line Insertion Gesture

is like the Insert BOL gesture 58 (FIG. 4C) but is located in the unlined margin

alongside a line. A whole line (text area+drawing area) or multiple lines will be inserted

in the lined area laterally adjoining the gesture location shifting all lines below it

downward within the document. This will cause the last line on each affected document

page to be shifted over the bottom and top margins (if any) to the first line of the next

document page. The inserted line takes on the characteristics (ruled area margins, etc.)

of the line/ruler that precedes it. Multiple lines can be inserted by extending the distance

that the gesture covers." (Forcier Column 15 Lines 38-49)

"The Break Point Gap (BPG) value is predetermined at the outset of stroke

position data capture. The BPG is calculated as a predetermined two dimensional area

of points (a parallelogram such as a rectangle). For highly slanted text, a user-

modifiable angle for the parallelogram can be determined from the user's writing."

"As stroke data is captured, LPM relies on the BPG value for determining a word

break. LPM performs a comparison between the (white space) value of the space

between the right-most point position of the preceding stroke data, and the left-most

point position of the current stroke data, with the BPG value. If the white space value is

greater than or equal to the BPG value, then the LPM has detected a word break.

Accordingly, LPM inserts a break point marker B (see FIG. 5B) at a location adjacent to

the left-most point of the current stroke data." (Forcier Column 25 Lines 3-18; compare

with claim 10, "... *identifying as a possible insertion point a point before a stroke, made*

in accordance with the handwriting system, wherein the stroke falls within a constrained

region on a page associated with the document and wherein the stroke is not

immediately preceded by another stroke in the same constrained region.") It would have

been obvious to one of ordinary skill at the time of the invention to apply Forcier to

Michelman, providing Michelman the benefit of page breaks located in certain area of

the page in according with the stroke position.

In regard to dependent claim 12, Michelman does not specifically teach of N consecutive strokes. However, Forcier teaches that "The detect input line method begins in step S130 by recording the latest stroke in a circular list of N (user-definable) strokes. The circular list is a data structure known in the art of computer programming. The circular list typically consists of a linked list having a tail pointing back to a head of the list. If there are remaining entries in the list, i.e., N strokes have not been entered, the method returns in step S140. If N strokes have been detected, step S134 determines whether the N strokes are within a user-definable horizontal distance. If so, a compute common line function is called in step S136. Otherwise, the method returns in step S140. Following the compute common line step, described below, step S138 determines whether all N strokes touch the common line computed in step S136. If so, referring now to FIG. 15B, the method that determines whether all N strokes are contained within the vertical three line area in step S142 is performed. (Forcier Column 19 Lines 37-53; compare with claim 12, *"...computing a measure of field appropriateness for each stroke made in accordance with the handwriting system to indicate how well a stroke within a particular field; and for N consecutive strokes which do not fit in the field of a particular page of the document, identifying a potential page break before these N consecutive strokes."*) It would have been obvious to add Forcier to Michelman, providing Michelman the benefit of computing N strokes.

In regard to independent claim 14, Michelman does not specifically teach of N consecutive strokes. However, Forcier teaches that "The detect input line method begins in step S130 by recording the latest stroke in a circular list of N (user-definable) strokes.

The circular list is a data structure known in the art of computer programming. The

circular list typically consists of a linked list having a tail pointing back to a head of

the list. If there are remaining entries in the list, i.e., N strokes have not been entered,

the method returns in step S140. If N strokes have been detected, step S134 determines

whether the N strokes are within a user-definable horizontal distance. If so, a compute

common line function is called in step S136. Otherwise, the method returns in step

S140. Following the compute common line step, described below, step S138 determines

whether all N strokes touch the common line computed in step S136. If so, referring

now to FIG. 15B, the method that determines whether all N strokes are contained within

the vertical three line area in step S142 is performed. Otherwise, the return step S144 is

performed.

If all of the strokes are contained within the vertical three line area the current

input line is set to the common line calculated in step S136. Once the current input line

is determined, the N strokes which are not rooted in the current input line are rerouted

into the current input line in step S148. Next, the input area borders of the current input

line are determined in step S150. The circular list is then emptied in step S160 and the

detect input line procedure is complete. (Forcier Column 19 Lines 37-61; compare with

claim 14, *"...computing a measure of overlap for each stroke with a previous stroke;*

and for N consecutive strokes with a total measure of overlap which is not less than a

threshold value, identifying a potential page break before these N consecutive strokes.")

It would have been obvious to one of ordinary skill at the time of the invention to apply

Forcier to Michelman, providing Michelman the benefit of computing a measure of

overlap for each stroke for a potential page break.

6.   **Claims 6, 11, 13 and 22 are rejected under 35 U.S.C. 103(a) as being**

unpatentable over Michelman et al. (herein after Michelman) in view of Ruedisueli

et al, as applied to claim 1, and in further view of Forcier, U.S. Patent No. 6,502,114

B1 filed October 1998 issued December 2002 and in further view of Johari at al.

(herein after Johari), U.S. Patent No. 5,911,146 filed May 1996 issued June 1999.

In regard to dependent claim 6, Michelman does not specifically teach of

computing strokes. However, Forcier teaches that "The arrows in FIG. 6B represent the

current direction after the point at each arrow position has been encoded. The initial

direction from starting point "x" is encoded per the binary values shown in FIG. 6C. The

actual encoding of the circle shown would be a concatenation of the following binary

directional data: 01011 Point count in stroke less 1 (Note: This is the binary length of

the stroke; it can be up to, e.g., 32 data points) 000 Direction from starting point "x" to

point 2 (Note: the starting point is recorded as an X-Y coordinate. This is the "root"

point of the stroke. This direction is the current direction at point 2.) 01 Direction

change needed to get to point 3 (Note: 01 shows a change to the right; 00 would be to

left.) 1 Continue in current direction to get to point 4 01 Direction change needed to get

to point 5 01 Direction change needed to get to point 6 1 Continue in current direction

to get to point 7 01 Direction change needed to get to point 8 01 Direction change

needed to get to point 9 1 Continue in current direction to get to point 10 01 Direction

change needed to get to point 11 01 Direction change needed to get to point 12 25 bits."

Compare with claim 6; "...*for each spatial difference not below the threshold value,*

computing on of the number of strokes and the total arc length associated with strokes

that occur between the current possible insertions point and one of the next page breaks

in the electronic document and the end of the stroke set of the document.")

Michelman does not specifically teach of assigning a score to be associated with

the possible insertion point. However, Johari teaches that "Once each pagination and

layout has been optimized, the one with the best score is selected as the best layout."

Compare with claim 6; *"...assigning one of the number of strokes and the total arc*

length as a score to be associated with the possible insertion point.") It would have

been obvious to one of ordinary skill at the time of the invention to apply Forcier and

Johari to Michelman, providing Michelman the benefit of computing strokes and

assigning scores to possible page break insertion points.

In regard to dependent claim 11, Michelman does not specifically teach of an

insertion point. However, Johari teaches of "A modification or perturbation is a

randomly selected change to one of the values defining the candidate solution. For

example, a page break in the advertisement stream can be changed by randomly

selecting one page break to delete and/or randomly selecting a page break to insert in the

advertisement stream. (Johari Column 6 Lines 19-24; compare with claim 11, *"...a*

confidence measure for the potential page break associated with the possible insertion

point.") It would have been obvious to one of ordinary skill at the time of the invention

to apply Johari to Michelman, providing Michelman the benefit of determining a

confidence measure for a potential page break insertion.

In regard in dependent claim 13, Michelman does not specifically teach of page

number location where N stroke fit. However, Johari teaches that "the system

determines a possible layout, called a candidate solution, by randomly setting

parameters defining the pagination and layout. These parameters may include page breaks in the advertisement stream, column numbers for each advertisement, and an amount of padding or empty space to be added to each page." (Johari Abstract Lines 7-13).

Forcier teaches of "a current input line is established according to the positions of the N strokes." (Forcier Column 18 Lines 42-44; compare to claim 13, "...*wherein the page break indicates the page number of the page having a field with which the N consecutive strokes appropriately fit.*") It would have been obvious to of ordinary skill in the art to apply Johari and Forcier to Michelman, providing Michelman the benefit of added page numbering for the N strokes for potential page breaks.

In regard to dependent claim 22, Michelman does not specifically teach of merging list. However, Forcier teaches of here can be no gaps or adjacent points having the same coordinates (duplicate points). In order to assure that there are no gaps, a line drawing algorithm is employed to fill any gaps in a stroke (typically due to moving the pen too fast) with a straight line before any attempt is made to compress the stroke. To remove duplicate points, which typically result from digitizing at high resolution and translating to a lower resolution, any duplicate points exceeding one are discarded at each position. (Forcier Column 21 Lines 58-60; compare with claim 22, "...*accepting all possible insertion points except duplicates*

7.   **Claims 7-9, 20-21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Michelman et al. in view of Ruedisueli et al. as applied to claims 1, 5 and 6, in further view of Forcier et al. as applied to claims 1,5, and 7, and in**

further view of Nakai et al. (herein after Nakai), U.S. Patent No. 5,909,221 filed

December 1995 issued June 1999 and in further view of Johari at al. (herein after

Johari), U.S. Patent No. 5,911,146 filed May 1996 issued June 1999.

In regard to dependent claim 7, Michelman does not specifically teach strokes

being below a second threshold value. However, Nakai teaches "The gray scaled date

generation device of the present embodiment differs to that of the sixth embodiment in

that the optimal arrangement position determination unit 14 uses a permitted range D

which corresponds to stroke width W.sub.sp, determining the optimal arrangement

position within this range. This is based on the same principle as the fifth embodiment.

In order to achieve this, the present embodiment adds the construction shown in FIGS.

58A-58C to FIG. 44 (optimal arrangement position determination process) of the second

embodiment. FIGS. 58A-58C are steps which are respectively inserted between Step

323 (Yes) and Step 334 in FIG. 44, between Step 324 (Mi>0) and Step 325 and

between Step 324 (Mi<0) and Step 327. In the same figure, the permitted range D=0

when the stroke width is below a threshold value W1, or D=1 when the stroke width is

equal to or above W1. Here, D=0 is the same as P1 in FIG. 54 and D=1 is the same as

P2 in FIG. 54. W1 is the same as the first threshold value in FIG. 54." (Nakai Column

34 Lines 54-67; compare with claim 7, "...*one of the number of strokes and the total arc*

length is not below a second threshold value.") It would have been obvious to one of

ordinary skill at the time of the invention to apply Nakai to Michelman, providing

Michelman the benefit of adding the number of strokes and total arc length above a

second threshold value.

In regard to dependent claim 8, Michelman does not specifically teach or

measuring differences between consecutive pairs of strokes. However, Nakai teaches

"optimal arrangement preparation unit 13 retrieves the potential optimal arrangement

position U.sub.1 and its initial arrangement position U.sub.ini for the stroke having

ordinal number "i" from the stroke table, subtracts U.sub.ini from U.sub.1, and stores the

value of the difference in the stroke table as the potential movement amount M.sub.1

(Step 240). If potential U.sub.1 is a decimal, it is not changed to an integer. If the value

is positive, it signifies upward movement, while if the value is negative, it signifies

downward movement. (Nakai Column 22 Lines 63-67 and Column 23 Lines 1-4;

compare with claim 8, "...*measuring a temporal difference between consecutive pairs of*

strokes made in accordance with the handwriting system; and labeling temporal

differences not below a threshold value a possible insertion.") It would have been

obvious to one of ordinary skill at the time of the invention to apply Nakai to

Michelman, providing Michelman the benefit of measuring the difference between

strokes as possible insertion points.

In regard to dependent claim 9, Michelman does not specifically teach of

assigning a score to a possible insertion point base on the threshold value. However,

Nakai teaches "The gray scaled date generation device of the present embodiment

differs to that of the sixth embodiment in that the optimal arrangement position

determination unit 14 uses a permitted range D which corresponds to stroke width

W.sub.sp, determining the optimal arrangement position within this range. This is based

on the same principle as the fifth embodiment. In order to achieve this, the present

embodiment adds the construction shown in FIGS. 58A-58C to FIG. 44 (optimal

arrangement position determination process) of the second embodiment. FIGS. 58A-

58C are steps which are respectively inserted between Step 323 (Yes) and Step 334 in

FIG. 44, between Step 324 (Mi>0) and Step 325 and between Step 324 (Mi<0) and

Step 327. In the same figure, the permitted range D=0 when the stroke width is below a

threshold value W1, or D=1 when the stroke width is equal to or above W1. Here, D=0

is the same as P1 in FIG. 54 and D=1 is the same as P2 in FIG. 54. W1 is the same as

the first threshold value in FIG. 54." (Nakai Column 34 Lines 54-67)

Johari teaches of "A set of rules, based upon the guidelines for laying out the

yellow pages, are applied to the pagination and layout in order to determine a score for

the layout. (Johari Column 2 Lines 28-30; compare with claim 9, *"...for each temporal*

difference not below the threshold value, assigning a score to the corresponding

possible insertion point based on a distance from the temporal difference to the

threshold value.") It would have been obvious to one of ordinary skill at the time of the

invention to apply Nakai and Johari to Michelman, providing Michelman the benefit of

assigning a score to a possible insertion point base on difference to the threshold value.

In regard to dependent claim 20, Michelman does not specifically teach of the

scoring process. However, Johari teaches that "The present invention uses a heuristic

approach called simulated annealing to optimize pagination and page layout. First, a

potential pagination is randomly determined for the set of advertisements and the

advertisements are randomly assigned to columns on that page. Second, the

advertisements are dropped upon the page in the appropriate columns. The text is then

placed in the empty spaces above (or below) the advertisements. A set of rules, based

upon the guidelines for laying out the yellow pages, are applied to the pagination and

layout in order to determine a score for the layout."

"The pagination is changed in a random manner by an iterative process. At each

iteration, the advertisements and text are laid out on the pages as described previously.

Each page is then laid out and the score redetermined. The new pagination is kept for

further modification if it has a better score than the previous layout, or is randomly

selected according to a certain probability if it does not improve the prior score. The

later action is instrumental in avoiding becoming stuck in locally optimal solutions."

Since the starting values are randomly determined, and the optimization uses

small, random perturbations, the pagination and layout method may not always lead to

the best possible result. Therefore, according to an aspect of the invention, the process

is repeated multiple times with different initial paginations and layouts. Once each

pagination and layout has been optimized, the one with the best score is selected as the

best layout." (Johari Column 2 Lines 20-46; compare with claim 20, *"...performing to*

or more scoring procedures, each scoring procedure generating a list whose elements

include a possible insertion point and a corresponding score; merging the lists

generated by the two or more scoring procedures to form a combined list; and selecting

one or more top scoring possible insertion points as the one or more potential page

breaks.") It would have been obvious to one of ordinary skill at the time of the invention

to apply Johari to Michelman, providing Michelman the benefit adding the scoring

procedure to the page break insertion process.

In regard to dependent claim 21, Michelman does not specifically teach of

selecting the top scoring possible insertion points. However, Johari teaches that "Since

the starting values are randomly determined, and the optimization uses small, random

perturbations, the pagination and layout method may not always lead to the best possible

result. Therefore, according to an aspect of the invention, the process is repeated

multiple times with different initial paginations and layouts. Once each pagination and

layout has been optimized, the one with the best score is selected as the best layout."

(Johari Column 2 Lines 40-47; compare with claim 21, "... *selecting a number of top*

scoring possible insertion points to match the number of expected pages of the

document.") It would have been obvious to one of ordinary skill in the art to apply

Johari to Michelman, providing Michelman the benefit of selecting top scoring insertion

points.

In regard to dependent claim 23, Michelman does not explain the scoring

procedure. However, Johari teaches of "A computer-based system for automatic

pagination and layout of yellow pages or a commercial telephone directory uses a

simulated annealing heuristic to refine a randomly determined candidate solution. The

text and advertisements which are to be included in the yellow pages directory are

ordered in two distinct data streams representing the order of text and the order of

advertisements in the directory. The system determines a possible layout, called a

candidate solution, by randomly setting parameters defining the pagination and layout.

These parameters may include page breaks in the advertisement stream, column

numbers for each advertisement, and an amount of padding or empty space to be added

to each page. Once the parameters are set, the individual pages are laid out by putting

the advertisements in the next available position in their assigned columns, and the text

around the advertisements. The solution is scored based upon the guidelines for the

format and layout of the yellow pages directory. The solution is then optimized using a

simulated annealing heuristic, which utilizes small modifications or perturbations

randomly made to the initial parameters of the candidate solution. The revised solution

is scored and compared to the score of the prior solution. The revised solution is then

kept according to a probabilistic formula relating the two scores. Through an iterative

process of perturbations, scoring, and comparing, the candidate solution becomes

optimized. The process is repeated multiple times for different initial candidate

solutions, each of which is randomly determined. A best solution is then selected from

all of the optimized candidate solutions." (Johari Abstract Lines 1-30; compare with

claim 23, "...*automatically identifying one or more potential page breaks further*

comprises the step of identifying a potential page break as a point offset from a possible

insertion point determined in accordance with a scoring procedure. " In would have

been obvious to one of ordinary skill at the time of the invention to apply Johari to

Michelman, providing Michelman the benefit of applying the scoring procedure to the

page breaks.

8.   **Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over**

Michelman et al. in view of Ruedisueli et al. as applied in claim 1 and in further

view of Carman, II (herein after Carman), U.S. Patent No. 5,454,046 filed

September 1993 issued September 1995.

In regard to dependent claims 15 and 17, Michelman does not specifically

teach of an average curve. However, Carman teaches that "each coordinate point as at

240 is examined as a possible top. If the two adjacent coordinate points are visually

lower or equal in height to the current coordinate point, then a top is sought using the

following examination: By tracing backwards as represented at point 242, and forwards

are represented at point 244, from the current coordinate point, one coordinate point at a

time until an end of the stroke occurs or another top or bottom coordinate point is found,

or the current coordinate point is classified as a top, the respective slopes of the lines

from the current coordinate point 240 to the tracing coordinate points 242, 244 are

computed. If these slopes are both found to be greater than a predetermined value, i.e..

(alpha*y.sub.1)-(beta*x.sub.1)>=0 and (alpha*y.sub.r)-(beta*x.sub.r)>=0 where

alpha and beta are predetermined constants) and if the difference is in height between

these points (y.sub.1 and y.sub.r) are both found to be greater than a predetermined

value, then the coordinate 240 is classified as a top in the stroke under examination. If

not found, the coordinate point 240 under examination now is examined in a similar

manner to see if it can be classified as a bottom." (Carmen Column 14 Lines 17-37).

Carman also teaches "the feature calculation 170 then progresses as represented at

block 176 to calculate worm moment and stroke average moment. Referring

momentarily to FIG. 8, an illustration is provided of a "worm" superimposed on the

time-ordered sequence of x/y coordinates representing a user input stroke. FIG. 8 shows

that each stroke represented generally at 220 is represented as a time-ordered sequence

of x/y coordinate points, one of which is depicted at 222. CPU 40, operating under

control of the word analyzer instructions 140 overlays the "worm" represented by the

encircled point at 223 as well as the other encircled points, of a specified length over the

coordinate points of the stroke, beginning at the start of the stroke represented at point

224, and progressing one coordinate point at a time along the stroke to the end of the

array as represented at point 226. For each step of the worm traversal of the stroke, a

worm moment is calculated. This worm moment is defined as the square of the distance

between the x/y coordinates of the stroke associated with the center point of the worm 228 and the x/y coordinates associated with the mid-point 230 between the two stroke points associated with the beginning 232 and the ending 234 points of the worm. It is, in essence, a measure of the bending of the stroke along the worm. A worm curvature also is calculated as $((x.sub.2 -x.sub.0)*(y.sub.1 -y.sub.0))-((y.sub.2 -y.sub.0)*(x.sub.1 -x.sub.0))$ where x.sub.0 at y.sub.0 are the x- and y-coordinates, respectively, of the stroke coordinate point associated with the beginning of the worm 232, x.sub.1 and y.sub.1 are the x and y coordinates, respectively, of the stroke coordinate point associated with the end of the worm 234, and x.sub.2 and y.sub.2 are the x and y coordinates, respectively, of the stroke coordinate point associated with the center of the worm 228. The sum of the worm moments is calculated as the worm inches (one coordinate point at a time) along the stroke from the beginning of the stroke to the end of the stroke. Returning to FIG. 7 and block 176, this sum is then divided by the number of worm moments summed, giving the stroke's average moment as represented at block 176. A plot of the worm moments across the stroke forms a locus of bend parameter. It shows tall peaks where the stroke bends are sharpest and is zero for straight-line segments in the stroke. This process is carried out for each stroke in the user entered time ordered stroke sequence. CPU 40, operating under the control of word analyzer 140, now looks for tops and bottoms of strokes as represented at block 178. A "top" of a stroke is defined as the high point of a curved section of a stroke as found in an upside-down "U". A "bottom" of a stroke is defined as the low point of a curved section of stroke as is found in a "U". Beginning at a pre-defined coordinate point from the beginning of a stroke and progressing to a pre-defined coordinate point from the end of

the stroke, each coordinate point is first examined as a possible top and then examined

as a possible bottom." (Carman Column 13 Lines 30-67 and Column 14 Lines 1-14;

compare with claim 15, "... *computing a moving average of spatial positions of strokes,*

made in accordance with the handwriting system, on a page using a predetermined

window width, the computation of the moving average resulting in a spatial position

moving average curve; computing a moving average of a slope associated with the

spatial portion moving average curve, the computation of the moving average resulting

in a slope moving average curve; and identifying negative slopes in the slope moving

average curve as potential page breaks" and compare claim 17 "*...computing moving*

average of temporal positions of strokes, made in accordance with the handwriting

system or a page using predetermined window width, the computation of the moving

average of the moving average resulting in a temporal position moving average curve;

computing a moving average of a slope associated with the temporal position moving

average curve, the computation of the moving average resulting in a slope moving

average curve; and identifying one or more positive slopes in the slope moving average

curve as potential page breaks. "). It would have been obvious to apply Carman to

Michelman, providing Michelman the benefit of computing moving average curves for

potential page breaks.

9.   **Claims 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable**

over Michelman et al. in view of in view of Ruedisueli et al. as applied in claim 1, in

further view of Carman, II as applied in claim 15 and in further view of Anwyl et al.

(herein after Anwyl), U.S. Patent No. 5,576,738 filed May 1994 issued November
1996.

In regards to dependent claim 16 and 18, Michelman does not mention of
positive and negative slopes. However, Anwyl teaches a "Video signal V(t) which
includes positive slopes S1 and S3 and negative slopes S2 and S4." (Anwyl Column 8
Lines 37-39; compare with claims 16 and 18, *"negative slopes"* and *"positive slopes."*
It would have been obvious to one of ordinary skill at the time of the invention to apply
Anwyl to Michelman, providing Michelman the benefit of adding positive and negative
slopes to the page break insertion.

10.   **Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over
Michelman et al. in view of Ruedisueli et al. as applied in claim 1, and in further
view of Mishra et al. (herein after Mishra), U.S. Patent No. 5,805,118 filed December
1995 issued September 1998.**

In regard to dependent claim 19, Michelman does not specifically teach of a
learning algorithm. However, Mishra teaches of a Display Protocol Specification and
Learning Algorithm (Mishra Column 8 Line 4; compare with claim 19, *"... identifying
one or more potential page breaks further comprises the steps of utilizing a learning
algorithm."*) It would have been obvious to one of ordinary skill in the art at the time of
the invention to apply Mishra to Michelman, providing Michelman the benefit of
utilizing a learning algorithm.

Conclusion

11.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ursin et al.	U.S. Patent No. 4,491,933	issued	01/1985
Horn et al.	U.S. Patent No. 4,709,348	issued	11/1987
Hernandez et al.	U.S. Patent No. 4,723,209	issued	11/1988
Barker et al.	U.S. Patent No. 4,723,211	issued	11/1988
Wilmott et al.	U.S. Patent No. 6,047,296	issued	04/2000

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Londra C Burge whose telephone number is 703-305-8784. The examiner can normally be reached on 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Herndon can be reached on 703-308-5186. The fax phone number for the organization where this application or proceeding is assigned is 703-746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

LCB
11/26/03